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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/913,785	01/04/2001	Clive Jones	537-1052	4133

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EXAMINER	
HOFFMAN, BRANDON S	

ART UNIT	PAPER NUMBER
2136	

DATE MAILED: 12/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/913,785	JONES ET AL.	
	Examiner	Art Unit	
	Brandon Hoffman	2136	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-18 is/are rejected.

7)☒ Claim(s) 2-7,12 and 13 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 04 January 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The disclosure is objected to because of the following informalities:

- Throughout the specification, the word "initialisation" should be –initialization–.

Claims 2-7, 12, and 13 are objected to because of the following informalities:

- Regarding claims 2 and 12, the word "initialisation" should be –initialization–.
- Regarding claims 3-7 and 13, these claims are dependent upon claims 2 and 12, and therefore inherit its deficiencies.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hustig et al. (U.S. Patent No. 4,672,605) in view of Rhoads (U.S. Patent No. 5,768,426).

Regarding claims 1 and 11, Hustig et al. teaches:

- A data encoding device having a serial data input and an encoded serial data output (fig. 1, ref. num 60 and 340),
    - Wherein the serial input is supplied to an encoding unit which combines each input bit with a plurality of additional encoding bits forming an encryption key, to derive an encoded output bit and a plurality of updated encoding bits (fig. 1, ref. num 98, 102, and 336), and
    - Wherein the combination function performed by the encoding unit combines the input bit with a function of the key, such that over time the encoded output bit stream comprises substantially white noise (fig. 1, ref. num 98/336 and "WHITENED DATA").

Hustig et al. does not teach wherein each subsequent input bit is encrypted using an updated key which is derived from previous values of the key and of the input bit.

Rhoads teaches wherein each subsequent input bit is encrypted using an updated key which is derived from previous values of the key and of the input bit (col. 17, lines 30-39).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine each subsequent input bit is encrypted using an updated key which is derived from previous values of the key and of the input bit, as taught by Rhoads, with the device of Hustig et al. It would have been obvious for such modifications because this provides a digital output word, which can be used as a scaling factor.

Regarding claims 2 and 12, the combination of Hustig et al. in view of Rhoads teaches wherein a random number generator is provided which generates a stream of bits, and initial plurality of encoding bits being derived from the output of the random number generator for initialization of the encoding device (see fig. 1, ref. num 102 of Hustig et al.).

Regarding claim 3, the combination of Hustig et al. in view of Rhoads teaches wherein each random bit is provided to a transformation unit comprising means for storing a predetermined number of previous values of the random bit to derive a multiple bit random word (see fig. 6, ref. num 214 of Rhoads).

Regarding claim 4, the combination of Hustig et al. in view of Rhoads teaches wherein the random word is supplied to a permutation unit which generates the initial plurality of encoding bits (see fig. 7, ref. to "1^{ST} THROUGH N^{th} CODE WORDS" of Rhoads).

Regarding claim 5, the combination of Hustig et al. in view of Rhoads teaches wherein the serial input comprises a string of digital words each comprising a predetermined number of bits, and wherein the random number generator is clocked using a word clock, such that for each digital word of the input a new random bit is generated, and wherein the encoding unit is re-initialized by the output of the permutation unit once for each word (see col. 22, lines 11-50 of Rhoads).

Regarding claim 6, official notice is taken that wherein the combination performed by the encoding unit is carried out more rapidly than the time associated with the reception of each input bit from the serial data input, such that the encoded output bit represents the input bit with zero delay. It would have been obvious for such a limitation because the skilled artisan would try to provide a real-time or near real-time encoding system.

Regarding claim 7, the combination of Hustig et al. in view of Rhoads teaches wherein the input comprises digital audio data (see col. 17, lines 9-13 of Rhoads).

Regarding claim 8, Hustig et al. teaches an apparatus for generating digital audio data comprising:

- A data encoding device having a serial data input and an encoded serial data output (fig. 1, ref. num 60 and 340),

- Wherein the serial input is supplied to an encoding unit which combines each input bit with a plurality of additional encoding bits forming an encryption key, to derive an encoded output bit and a plurality of updated encoding bits (fig. 1, ref. num 98 and 102), and
- Wherein the combination function performed by the encoding unit combines the input bit with a function of the key, such that over time the encoded output bit stream comprises substantially white noise (fig. 1, ref. num 98 and "OUTPUT/WHITENED DATA").

Hustig et al. does not teach a source of digital audio signals, wherein each subsequent input bit is encrypted using an updated key which is derived from previous values of the key and of the input bit, or a transmitter for supplying the encoded serial data output to an output port of the apparatus.

Rhoads teaches a source of digital audio signals (col. 1, lines 17-21), wherein each subsequent input bit is encrypted using an updated key which is derived from previous values of the key and of the input bit (col. 17, lines 30-39), and a transmitter for supplying the encoded serial data output to an output port of the apparatus (fig. 6, ref. num 234).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine a source of digital audio signals, wherein each

subsequent input bit is encrypted using an updated key which is derived from previous values of the key and of the input bit, and transmitting the encoded data to an output port, as taught by Rhoads, with the apparatus of Hustig et al. It would have been obvious for such modifications because this provides a digital output word, which can be used as a scaling factor; the transmitter simply sends the encoded data to a decoding side to properly retrieve the original contents.

Regarding claim 9, official notice is taken that wherein the output at the output port is in SPDIF or AES/EBU format. Applicant admits, on page 1, lines 20-24 of the instant application, that SPDIF and AES/EBU are the common output methods for audio. Rhoads teaches the data signal can be an audio signal. It would have been obvious to a skilled artisan to use the common output methods for outputting audio signals.

Regarding claim 10, the combination of Hustig et al. in view of Rhoads teaches comprising a compact disc player (see col. 18, lines 26-29 of Rhoads).

Regarding claim 13, Hustig et al. teaches an apparatus for reconstructing digital audio signals comprising an input for receiving encoded digital audio signals, a receiver for supplying the encoded digital audio signals to a decoding device, and an output for the reconstructed digital audio signals (fig. 5, "TEL LINE", 225, and 340).

Hustig et al. does not teach the signals are audio signals.

Rhoads teaches the signals are audio signals (col. 1, lines 17-21).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine using audio signals, as taught by Rhoads, with the apparatus of Hustig et al. It would have been obvious for such modifications because any type of signal can be used; a mere choice of audio signals allows audio data to be protected by the encoding/decoding apparatus.

Regarding claim 14, official notice is taken for comprising a speaker. The system taught by Hustig et al. in view of Rhoads teaches the use of audio signals. In order to hear the audio signals, speakers would be required.

Regarding claim 15, Hustig et al. teaches a data communications system comprising:

- An apparatus for generating digital audio data including:
    - A data encoding device having a serial data input and an encoded serial data output (fig. 1, ref. num 60 and 340),
        - Wherein the serial input is supplied to an encoding unit which combines each input bit with a plurality of additional encoding bits

forming an encryption key, to derive an encoded output bit and a plurality of updated encoding bits (fig. 1, ref. num 98 and 102), and

- Wherein the combination function performed by the encoding unit combines the input bit with a function of the key, such that over time the encoded output bit stream comprises substantially white noise (fig. 1, ref. num 98 and "OUTPUT/WHITENED DATA"); and

- An apparatus for reconstructing digital audio signals comprising an input for receiving encoded digital audio signals, a receiver for supplying the encoded digital audio signals to a decoding device, and an output for the reconstructed digital audio signals (fig. 5, "TEL LINE", 225, and 340).

Hustig et al. does not teach a source of digital audio signals, wherein each subsequent input bit is encrypted using an updated key which is derived from previous values of the key and of the input bit, or a transmitter for supplying the encoded serial data output to an output port of the apparatus.

Rhoads teaches a source of digital audio signals (col. 1, lines 17-21), wherein each subsequent input bit is encrypted using an updated key which is derived from previous values of the key and of the input bit (col. 17, lines 30-39), and a transmitter for supplying the encoded serial data output to an output port of the apparatus (fig. 6, ref. num 234).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine a source of digital audio signals, wherein each subsequent input bit is encrypted using an updated key which is derived from previous values of the key and of the input bit, and transmitting the encoded data to an output port, as taught by Rhoads, with the system of Hustig et al. It would have been obvious for such modifications because this provides a digital output word, which can be used as a scaling factor; the transmitter simply sends the encoded data to a decoding side to properly retrieve the original contents.

Regarding claim 16, Hustig et al. teaches an apparatus, wherein the audio input is encoded such that the encoded audio output comprises substantially white noise (fig. 1, ref. num 98 and "OUTPUT/WHITENED DATA"), and the output of the apparatus additionally comprises control data for enabling the audio input to be reconstructed at an associated decoding device (fig. 5, "TEL LINE", 225, and 340).

Hustig et al. does not teach encoding digital audio signals, or the apparatus having an audio input in a format having a dedicated clock signal channel and an encoded audio output in a format having an intrinsically defined clock signal in the output data stream.

Rhoads teaches encoding digital audio signals (col. 1, lines 17-21), the apparatus having an audio input in a format having a dedicated clock signal channel

and an encoded audio output in a format having an intrinsically defined clock signal in the output data stream (col. 1, lines 17-21 and applicants admission that SPDIF and AES/EBU data formats are the common formats for audio).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine encoding digital audio signals and the apparatus having an audio input in a format having a dedicated clock signal channel and an encoded audio output in a format having an intrinsically defined clock signal in the output data stream, as taught by Rhoads, with the apparatus of Hustig et al. It would have been obvious for such modifications because the input and output formats used are the common methods; this provides scalability across a lot of platforms. This makes production cheaper because of the commonly used I/O formats.

Regarding claims 17 and 18, official notice is taken that wherein the output format having an intrinsically defined clock signal comprises the SPDIF or AES/EBU data format and wherein the format having a separate clock channel comprises the I^2C data format. Applicant admits, on page 1, lines 20-24 of the instant application, that SPDIF and AES/EBU are the common output methods for audio. I^2C was developed more than 20 years ago for a simple way to connect to audio input devices. Rhoads teaches the data signal can be an audio signal. It would have been obvious to a skilled artisan to use the common input and output methods for inputting and outputting audio signals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandon Hoffman whose telephone number is 571-272-3863. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brandon Hoffman

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